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**A MEMORIAL,**

READ TO THE

Society for the Encouragement of Arts,  
Manufactures, and Commerce,

DECEMBER 18, 1799;

AND

**A SPEECH,**

DELIVERED BEFORE THE SAME SOCIETY,

JANUARY 29, 1800;

*K*  
By **EDMUND CARTWRIGHT, M.A.**

AND FELLOW OF LINCOLN;

WITH

**AN APPENDIX,**

CONTAINING,

LETTERS FROM THE LATE SIR WILLIAM JONES,  
DR. THURLOW, LATE BISHOP OF DURHAM,  
AND OTHER DISTINGUISHED CHARACTERS.

TO WHICH ARE ADDED,

CERTIFICATES OF THE POWER OF HIS IMPROVED  
STEAM ENGINE,

AND THE USEFUL APPLICATION OF HIS OTHER  
MECHANICAL INVENTIONS.

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T. BENSLEY, Printer, Bolt Court, Fleet Street.

# A MEMORIAL

READ TO THE

Society for the Encouragement of Arts,  
Manufactures and Commerce

DECEMBER 1, 1800

AND

## A SPEECH

DELIVERED BEFORE THE SAME SOCIETY

JANUARY 18, 1800

BY ADAM SMITH, ESQ.

OF THE SOCIETY OF BARRISTERS



IN RESPONSE TO A RESOLUTION PASSED BY THE SOCIETY  
ON THE 10TH OF JANUARY 1800  
AND OTHER DISCUSSIONS AND CHARACTERISTICS

RELATIVE TO THE STATE OF THE MANUFACTURE  
OF STEAM ENGINES  
AND THE MEANS OF IMPROVING THEM  
IN THE MANUFACTURE OF STEAM ENGINES

44

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29

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## P R E F A C E.

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THERE is nothing, I hope, improper in laying before the public the following papers. The mechanical reputation I have for many years supported, and which, from the sacrifices I have made to it, ought to have supported me, seemed indispensably to have required it.

From the manner in which some particular questions were put to me on the evening of the examination, I felt a necessity of producing certificates to certain facts I then stated, and which necessity has equally operated in calling for the present publication.

Some apology, however, may be necessary for printing the letters from the late sir William Jones, which certainly have no connexion with the business I have lately been engaged in, any farther than as I had mentioned in my memorial the intimacy that had subsisted between us. The letters, indeed, are so highly flattering to me, I should have considered it the extreme of vanity, on any other occasion to have published them. But having once experienced the awkwardness of being my own panegyrist, in the presence of a respectable and numerous audience, to the greater part of which I was a stranger, it is not to be wondered at, if on this my second appearance in that character, and before the public at large, to whom I am a still greater stranger, I should be glad to call in so able a friend to keep me in countenance. For the letters themselves it is



needless to apologize. Whatever is from the pen of sir William Jones cannot but be acceptable, however insignificant may be the subject, and they will be thought not less so, from being the only specimens of his epistolary correspondence at present before the public.

With regard to my late respectable opponent, Mr. Charles Taylor, I have to observe, that his acquirements and connexions are such as must make him singularly useful to the Society. He is acquainted with chemistry and its application to the several arts and manufactures dependant upon it. He is conversant with mineralogy, and has visited not only the principal mines in this country, but in various parts of Europe. He has a knowledge of most of the European languages, particularly German and French, and has established correspondences with some of the first scientific characters

in the countries he has visited. To have opposed a candidate so eminently qualified for the situation he solicited, and who has it in his power to render the Society such material services, would have been culpably selfish.

Notwithstanding the principle on which I have acted in this business, it has been insinuated, I find, that I had withdrawn myself from the contest, in consequence of other prospects having been held out to me more alluring than the secretaryship to the Society of Arts. In answer to this insinuation I can only say, that before the prospects alluded to were even in existence, I had told Mr. Charles Taylor himself, so far back as the 20th of December last, that finding he was better qualified for the situation than I was, he should have no opposition from me. That it was never my intention to oppose any one, indeed,

so

so qualified, I might appeal to a letter I did myself the honour to address to our noble President at the very commencement of the business, avowing the same sentiment. A like appeal I might make to almost every member of the Society whose vote I personally solicited.

*Mary-le-bone Park,  
No. 8, opposite Portland Road,  
February 5, 1800.*

REMARKS

to quitted. I might appear to a letter I  
but I think the honor is attached to me  
nobis President in the very committee  
ment of the House, leaving the same  
testimony. A like appeal I might make  
to almost every one of the Society  
whose vote I have obtained





A

# MEMORIAL,

READ TO THE

Society for the Encouragement of Arts,  
Manufactures, and Commerce,

*December 18, 1799.*

B

MEMORIAL

Presented to the  
Museum of the  
City of New York  
by the  
Committee on  
the  
History of the  
City of New York



## A MEMORIAL, &c.

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**AT** the time I first offered myself as successor to my friend, the late Mr. More, I was by no means apprised that the candidates would be called upon to proclaim, in person, their own qualifications, otherwise you would certainly not have seen me in this place.

Could I, indeed, have foreseen my present embarrassing situation, scarcely any consideration should have prevailed upon me to violate, as I must do, my own feelings, and, at the same time, run the risk of disgusting those whose favour I wish to conciliate. For nothing, surely, can be more disgusting than to hear a man speak in his own praise; nor, if he has any feeling of modesty, more painful to himself. But having engaged in the contest before I

was acquainted with this particular condition of it, I found I had advanced too far to recede; and my friends, in whose partial estimation I am thought worthy of being a candidate for your favour, calling upon me to come forward, their call I must obey. If, therefore, in what I shall have to lay before you, there should appear any thing of vanity or ostentation, let, I beseech you, the unavoidable necessity, as well as novelty, of the case plead my apology; and not only mine, indeed, but that of my competitors, who must, no doubt, labour, on an occasion like this, under similar embarrassment and distress.

Some mistaken, not to say injurious, reports having been circulated respecting my original destination and profession in life, of no great consequence, indeed, to the Society, though of some importance to myself, I beg leave to state; that I was educated at Oxford; that I was for several years fellow of Magdalen College in that University; and that I am even at this day a member of it.

A cir-



A circumstance attended the obtaining my fellowship, which, as, I flatter myself, it will give you no unfavourable impresson of the character I even then bore, you will pardon me if I mention: At the time the fellowship was to be filled up, not having taken my first degree, I was incapable of being a candidate. The University, however, removed the incapacity, by passing an act of convocation to enable me to take my degree at an earlier period than I was otherwise entitled to; a very signal mark of their favour, which I must ever gratefully remember, and of which I recollect only one other instance, at that time, upon record.

It may not be impertinent to add, that during my residence in that seminary of learning, I enjoyed the intimate society of some of its brightest ornaments; men, at that time, as distinguished for talents, as they have since been for rank and station, to which those talents advanced them. In this number I am singularly proud to mention one of the first characters of the age,

that truly eminent and great man, the late sir William Jones; a man whose memory will be revered so long as learning, genius, or virtue, are in estimation; and whose friendship and esteem must of themselves alone be an enviable distinction. Permit me to name one other academical friend, the late amiable bishop of Durham, to whose unsolicited kindness I was indebted for a prebendal stall in the cathedral of Lincoln, at the time he presided in that see.

I have dwelt upon these circumstances longer, perhaps, than I should have done, had I not felt it necessary, as tending to obviate insinuations respecting my character and opinions, which either ignorance or malevolence has been busy in disseminating.

The qualifications more particularly looked for in the person who is to fill the important office of Secretary to this Society, are, I understand, practical knowledge and experience in those matters which are its leading objects; these are, chemistry, the  
polite

polite arts, agriculture, manufactures, and mechanics. It is expected also, that he should know something of the modern languages. The only living languages I ever was acquainted with were the French and Italian. These I could formerly have read with tolerable facility, but disuse for a long series of years has nearly obliterated them from my recollection. I do not feel, however, as if I should have much difficulty in very soon recovering them. In the mean time I would take care that the Society should experience no inconveniency on that account.

Of chemistry, though I am not ignorant of its elementary principles, my knowledge is much too limited to speak of it with any degree of confidence. In this department, therefore, I am free to confess you will not find my acquirements of that service to you I could wish; and yet, I flatter myself, you will not find them altogether useless. That they have not been altogether useless to the world, I need only appeal to that most invaluable discovery, the method of administering,

tering, in the form of yeast, the carbonic acid gas; a discovery which, not only in this island, but in various parts of the globe, has already, in innumerable instances, disarmed even death itself of one of its most formidable weapons. You will perceive I am alluding to the almost invariable success with which this remedy has been administered in cases of putrid fever, and as a specific in that cruel disease, the sea scurvy. Those only who have experienced that sublimest of enjoyments, the pleasure of benefiting mankind, can appreciate the satisfaction I have had in its discovery.

Of the productions of the polite arts, having ever been an enthusiastic admirer, I am willing to believe I am in some degree a competent judge; and that even of technical knowledge, considering I have not cultivated the arts as a profession, I am not without a reasonable share.

But of all the objects which engage the attention of this Society, the principal, and, without dispute, the most important, is agriculture; an art which, at the present awful period,



period, more, perhaps, than at any former one, requires the united exertions of every enlightened mind to bring to its highest stage of practical perfection. That much is to be done, it is unnecessary to observe; for till such time as every field shall be a garden, agriculture has certainly not arrived at its acmè. That this is no ideal point of improvement to look forward to, we need only advert to the state of this art amongst the Chinese, and the manner in which they are at once compelled and enabled to practise it by an overflowing population. With us the great mass of population being diverted into other channels, other means are to be resorted to: The combined energies of various arts must be employed; chemistry must lend her inexhaustible stores; mechanics her hundred arms. The one, by calling into action the latent principles of nature, gives to vegetation renewed life, and increasing fertility; the other, by furnishing man with multiplied ability, gives to a pigmy the powers of a giant. But no combinations of science in agriculture will

will avail without practical knowledge; and in no art, so indispensably as in this, is practical knowledge required from your Secretary. On any other subject information or assistance, in a city like this, may be met with in every street and at every hour. For here is the resort of genius and talents in every department of science; not only because they are here most encouraged, but because they are here also most conveniently cultivated. With agriculture and its professors it is otherwise: agriculture is not to be practised in cities, nor has a city life allurements for a mind devoted to its pursuits. On this subject, therefore, more frequently than on any other, must your Secretary depend on the resources and stores of his own mind. These stores are not to be collected from books or theory; nor from the speculative opinions of artists, mechanics, chemists, or philosophers; they must be the result of real practice and repeated observation, under different circumstances, and at different seasons. On this ground I feel to tread with confidence: for  
 during

during nearly thirty years of my past life my constant residence has been in the country; and for a considerable part of that time, those hours, which were not occupied by the duties of my profession, or devoted to literary pursuits, were chiefly employed in the practice and study of agriculture. I may truly affirm there are few experiments, in that most useful and interesting art, which I have not either tried myself, or witnessed the trial of by others.

Respecting manufactures and practical mechanics, it will be no boast in me to say what, indeed, so many here present can probably confirm, that few men have had greater experience than myself; still fewer, I should hope, have purchased that experience at so dear a rate.

The manufactures I am more immediately acquainted with are those extensive ones of cotton and wool, every process in which I have directed, from the raw state of the article, till perfected in the loom. There are several other manufactures also  
of

of which, I flatter myself, you will not find me ignorant.

That I may not detain you too long by reciting all the different mechanical inventions of magnitude and importance that I have at various times brought forward, I shall enumerate only three; and these three, as you will perceive, are in departments of invention totally distinct from each other. These are, the method of combing wool by machinery; the geometrical principle of constructing arches so as to have no lateral pressure; and the late improvements I have made in the steam-engine. By that single invention of combing wool by machinery, the manufacturers are at this moment saving at least £40,000 a year; and in a short space of time will annually save between one and two millions. By the geometrical principle of constructing arches, so as to have no lateral pressure, buildings may be erected at as little expence as they now are, and be perfectly secure from fire. And by my improvements on the steam-engine, I have so added to its power, simplified its construction,



construction, and reduced its expence, that it may not only be employed in manufactures more extensively than it has hitherto been, but may be made also a most powerful and profitable agent in husbandry, as will, I hope, be exhibited on an extensive scale in the course of next summer.

There are many other circumstances in a long, and, I may say, useful life of unwearied exertion, which might with propriety have been brought forward. But I have confined myself to those chiefly which, being of public notoriety, the public, if any thing has been stated unfairly, has the means of confuting.

Permit me to trespass on your time a few moments longer. Since the death of Mr. More, a very unusual number of new members, I am told, has been admitted into the Society; many, it is possible, for the mere purpose of voting at the ensuing election. There are, I trust, no friends of mine who have gained admittance from any such motive. If they have, I must request they will either not vote at all, or bestow their  
votes

votes on some other candidate. For myself, I should feel it a disgrace to owe that to private interference, which it would be my ambition to obtain by the public voice. If I am to succeed, I will succeed only by fair and honourable competition.

**SPEECH**

# S P E E C H

DELIVERED TO THE

Society for the Encouragement of Arts,  
Manufactures, and Commerce,

*January 29, 1800.*

S P R E C H

Addressed to the

Society for the Improvement of Arts,  
Manufactures and Commerce



## S P E E C H, &amp;c.

It may appear singular that, with the fairest prospects before me of ultimate success, I should have resumed my former connexion with you, as a member of the Society.

The respect I owe, not only to that host of friends, which the present competition has procured me, but to the Society at large, requires that I should explain to you the motives of my conduct, and the principle on which I have acted.

But I must first of all request those gentlemen who intended me the honour of their support, to accept my warmest and most grateful thanks, not only for the honour they intended me, but for that which they have already conferred. Comparatively speaking, not personally known to

C

them,

them, they have embraced my interests with all the cordiality of private friendship; and from no other inducement, certainly, than their own innate liberality of mind. For in no instance, a solitary one, perhaps, excepted, have I even perceived the necessity, could I have stooped to the practice, of resorting to those mean arts of conciliation, which fail not to win upon the multitude, and but too commonly succeed with the more enlightened. I have employed neither intrigue nor flattery; the influence of connexion, nor the patronage of the great; neither have I degraded myself, nor insulted my friends or the Society, by servile solicitation. Their kindness, boundless as it has been, has flowed spontaneously. The sensations it has excited it is impossible to express; and, perhaps, it is not easy for every one fully to comprehend. For it is not every one whose fortunes have occasionally placed him in that situation, in which the common and contemptible friendships of the world look cold upon him. They only, who have so been placed,

can

can estimate the value of disinterested kindness, or the force of those sensations such kindness must excite:

Only two candidates had presented themselves before I did ; the one, that distinguished artist, Mr. Valentine Green, an old and much respected member of this Society, to whom, as I have lately been informed, the Society is under great and lasting obligations, a circumstance I must regret not to have known sooner. The other candidate was your assistant Secretary, Mr. Taylor, a gentleman whose very superior talents and character I hold, as every one must do, in the highest estimation ; and whom, therefore, I would on no account have opposed, had I not understood it was decidedly your intention to choose a Secretary of more practical knowledge and experience in the business which usually comes before you. Were the business of this Society, or the questions to be discussed in it, such as were agitated in the Lyceum, or the Grove of Academus, that worthy and most excellent scholar would

not long remain in his present subordinate situation. The profundity of his erudition, the herculean powers of his mind, and the sublimity of his genius, would soon advance him to a far more elevated station, than either that which he now fills with so much satisfaction, and, I must add, honour to the Society, or that for which he offered himself. But our occupations require not such exalted talents; and, indeed, for the general purposes of the Society, they would be useless. The sublime intellectual chemistry of Plato himself, master as he is of the analysis of mind, gives no insight into the decomposition of material substances; neither will an argument drive a nail, nor a syllogism turn a screw. Acquirements, therefore, of an humbler kind, and more upon a level with the objects with which it is expected he should be conversant, are what you have thought proper to look out for in a Secretary. These acquirements are only to be met with among those, who, having directed their attention to material nature, are acquainted



ed with the dependencies, the properties, and various combinations of matter, as connected with the profitable purposes of life; among those, in short, who, either like myself, have been seduced from the peaceful and retired paths of abstract science, philosophy, or literature, to wander into unknown regions of invention, in search of new and useful discoveries; or, who having exercised the arts themselves, have ascended, by patient investigation, from the practice to the theory and principles on which the arts are founded.

My general acquaintance with the principal objects of the Society, and the great experience I have had in agriculture, in manufactures, but most of all as an inventive mechanic, encouraged me to think my services might have proved not unuseful to you. It was on this ground, and on this ground only, I offered myself. At the same time, aware that competitors would possibly arise, whose views might have extended, in certain directions, farther than mine, I determined in my own mind, and

of which I have made no secret, that I would retire from the contest, should any one come forward more competent to the situation than myself. It would be an affectation of modesty, the mere common subterfuge of concealed vanity, were I to say I have reason to consider any of the candidates as coming under that description, one only excepted.

From the very first letter addressed by Mr. Charles Taylor to the Society, I clearly perceived, if the facts it contained were accurately stated, that he must have had as much practical knowledge and experience in the line of his pursuits, as I have had in mine, with the additional advantage of other very useful attainments, to which, it has so happened, I have but slightly attended, or from which my attention has for years been withdrawn. It seemed, therefore, as if it would be impossible for you to fix upon a candidate who would, in all respects, so completely meet the wishes of the Society as that gentleman. But as it is not usual, I believe, to measure the talents

lents of an opponent merely by his own scale, or the partial representations of his friends; I thought it necessary, before I precipitately withdrew myself, to inquire into, and investigate his claims as fully and as minutely as my own judgment would enable me. That I have done this with the scrutinizing eye of a rival, it is true; but, I flatter myself, I have formed my conclusions with the cool and candid impartiality of an unprejudiced observer. I have the pleasure then to say, and pleasure it is, to me at least, on any occasion to do justice to merit, that I am convinced, as well from the private information I have industriously collected, as from Mr. Taylor's own memorial and documents, which I have as carefully examined, I am convinced, I say, that every fact he originally set out with has been fully substantiated; and that, consequently, his qualifications are such as demand from you the first title to your notice.

With this conviction impressed upon my mind, notwithstanding the great tide of par-

tiality in my favour, and which, I doubt not, would have carried me forward to the object of my ambition, I have determined that no private views of mine shall interfere with the interests of the Society, or the well-founded claims of a candidate so pre-eminently meritorious. I, therefore, cease to be his competitor.

With the same sentiment, then, with which I first started for this golden apple of contention, the Secretary's chair, I shall withdraw my pretensions to it, **DETUR DIGNIORI.**





A P P E N D I X.



*Letters from Sir William Jones to the Rev,  
Edmund Cartwright.*

I.

*Lamb Buildings, Temple,  
16 May, 1780.*

Dear Sir,

SINCE my friends have declared me a candidate for the very honourable seat which Sir Roger Newdigate intends to vacate, I have received many flattering testimonies of regard from several respectable persons; but your letter dated May 8th, which I did not receive till this morning, is, without a compliment, the fairest and most pleasing fruit of the competition in which I am engaged. The rule of the University, which is a very noble one, forbidding me to solicit votes for myself, I have not been at liberty even to apply to many persons whom it is both a pleasure and an honour to know. Your unsolicited approbation is a great reward of my past toil in my literary career, and no small incentive to future exertions. As to my integrity, of which you are pleased to express a good opinion, it has not yet been tried by any very strong temptations: I hope it will resist them, if any be thrown in my way. This only I may say (and, I think, without a boast),

boast), that my ambition was always very much bounded, and that my views are already attained by professional success adequate to my highest expectations. Perhaps, I shall not be thought very unambitious, if I add, that my great object of imitation is Mr. Selden, and that if I could attain the same honour which was conferred on him, I should, like him, devote the rest of my life to the service of my constituents and my country, to the practice of an useful profession, and to unremitted study of our English laws, history, and literature. To be approved by you, and such men as you (if many such could be found), would be a sufficient reward to,

Dear sir,

Your much obliged

and very faithful servant,

W. JONES.

Permit me to add an ode\* printed (but not published) before the present competition, and at a time when I should certainly have been made a judge in India, by the kindness of lord North, if any appointment had taken place. It proves sufficiently, that no views or connexions can prevent me from declaring my honest sentiments, when I think they may be useful to my country.

\* Ad Libertatem Carmen. See his works, Vol. IV, p. 591.

Dear



## II.

*Lamb Buildings, Temple,**4 Sep. 1780.*

Dear Sir,

PERMIT me again to express (what I can never express too often, or too warmly) my very sincere thanks for your kind letter dated 8 May, and to assure you, as I may with the greatest truth, that I am just as much obliged to you, as if your kindness had been attended with the most brilliant success; but, as my strength in the great elective body of our University (which strength, all circumstances considered, was very respectable) lay chiefly among the non-resident voters, it would be unpardonably ungrateful in me, were I to give my friends the trouble of taking long journies, without a higher probability of success than my late inquiries have left me room to expect. I therefore decline giving any farther trouble to the learned body, and am heartily sorry for that which has already been given them, though not originally by me or my friends. I am perfectly conscious, that, had I been so fortunate as to succeed at Oxford, I should not have advanced, nor wished to advance, a single step in the career of ambition, but should cheerfully have

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sacrificed

sacrificed my repose and peace of mind to such a course as I conceived likely to promote the public good; and this consciousness cannot but prevent me from being in the least depressed by my failure of success. I should never repent of this little struggle if it had produced no other fruit than the testimony of your approbation. The hurry of the general election to a professional man has obliged me to suspend till another long vacation two little works; which I hoped to finish in the remainder of this: the first is a treatise *On the Maritime Jurisprudence of the Athenians*, illustrated by Five Speeches of Demosthenes in *Commercial Causes*; and the second was a dissertation *On the Manners of the Arabians before the Time of Mahomed*, illustrated by the Seven Poems, which were written in Letters of Gold and suspended in the Temple at Mecca about the beginning of the sixth Century. When they are printed, I shall be proud in submitting them to your judgment, as the excellence of it is well known to,

Dear sir, &c.

W. JONES.

Dear

## III.

*Friday Night, 8 Sep. 1780.*

Dear Sir,

Your last favour I have this instant received, and am obliged to answer it in the greatest haste. I hope you have by this time received my letter, in which I informed you that I had declined a poll at Oxford, but was as much obliged to you and my other friends as if your kindness had been attended with the most brilliant success. I saw an advertisement also in the paper that Dr. Scott had declined. I rejoice that . . . . .

I have been told, that the very ode, to which you are so indulgent, lost me near twenty votes: this, however, I am unwilling to believe. I am, &c.

W. JONES.

## IV.

*Lamb Buildings, Temple,  
12 Nov. 1780.*

Dear Sir,

You have so fully proved the favourable opinion which you do me the honour  
to

to entertain of me, that I am persuaded you acquit me of any culpable neglect in delaying for more than two months to answer your very obliging letter. The truth is, that I had but just received it, when I found myself obliged to leave England on very pressing business, and I have not long been returned from Paris: the hurry of preparing myself for so long a journey at such a season left me no time for giving you my hearty thanks, which I now most sincerely request you to accept, both for your kind letter and for the very elegant sonnet, with which you have rewarded me abundantly for my humble labours in the field of literature. I give you my word that your letters and verses have greatly encouraged me in proceeding as expeditiously as I am able, to send abroad my *Seven Arabian Poets*, and I propose to spend next month at Cambridge in order to finish my little work, and to make use of a rare manuscript in the library of Trinity College: my own manuscript, which was copied for me at Aleppo, is very beautiful, but, unfortunately, not very correct. You may depend on receiving a copy, as soon as it can be printed. In these rambles into the wilds of Arabia, I soften the anguish . . . . .

How happy I shall be, if I should be able to wait  
upon



upon you in Leicestershire, or to see you in London, and assure you in person that I am with the greatest sincerity,

Dear sir, &c.

W. JONES.

V.

Lamb Buildings, Temple,  
1 May, 1781.

Dear Sir,

I TAKE the liberty to send you, (as my *Arabian* Poets are not yet ready to wait upon you) a paraphrase of a Greek fragment\*, which came into my head this spring in my way to Wales. I make no doubt of your continuing to cultivate the Muses, by whom you are so highly favoured; and hope you will from time to time transmit the fruit of their favours to,

Dear sir, &c.

W. JONES.

\* This spirited composition is to be met with in Vol. IV. of his works, p. 571.

D

Dear

## VI.

Lamb Buildings, Temple,

20 Dec. 1781.

Dear Sir,

SINCE I received your obliging letter, an interval of six months has elapsed, but in all that interval, I have either been deeply engaged in professional labours, or confined by illness: I have enjoyed no rest. At this moment I am slowly recovering from a severe inflammatory disorder; yet your letter and your fine sonnets have remained constantly on my mind, and I now take up my pen to thank you most warmly for the pleasure which they have given me. I hope my friend Watson has seen the noble wreath of laurel which your animated muse has woven for him. I entreat you to send me the two others, which I long to see. The few copies which were printed of the Latin ode, are so dispersed, that I have not one myself, and would print a few more, if a learned friend of mine had not engaged to publish it with notes, historical and critical, for want of which it is in some parts obscure. You may depend on receiving one of the first copies that can see the light; and my *Seven Arabian Poets* will wait upon you as soon

as

as their European dresses are finished. I take the liberty to enclose an ode \* composed without preparation and almost without any premeditation: it is the work of a few hours. In truth, when I attended the wedding I had no thoughts of writing, but the young ladies would not hear of an excuse: you must therefore make all due allowance for poetry by compulsion.

I am, dear sir, &c.

W. JONES.

## VII.

*Temple, 24 March, 1783.*

ALLOW me, dear sir, so far to disobey you, as to acknowledge the receipt of two very obliging letters, and to thank you most cordially for the friendly expressions which they contain. I am indeed much hurried, partly by serious business, partly by troublesome, though necessary, forms; and have not time to write a thousandth part of what I could say, if I had the happiness of being with you. I have no thoughts at present of col-

\* The ode alluded to is to be found in Vol. IV. of his Works, p. 565.

lecting

lecting my political or literary tracts, but am equally flattered by your obliging offer. There is a press at Malda, and another at Calcutta, where I hope to print some eastern rarities; and, if I can bring the Persian epick poem to Europe in an English dress, I shall be as far below Lycurgus as Firdusi is below Homer, but shall think the analogy just, and my country will be obliged to me. The family in Hampshire, to whom I read your sweet poems at Christmas, heard them with delight. I am, dear sir, &c.

W. JONES.

*Letter from the late Bishop of Durham.*

Dear Sir,

I AM ashamed, when I look at the date of your letter, to have so long neglected to acknowledge the pleasure which Mrs Thurlow and I received from its contents: we were exceedingly glad to find that you have so happily and fully succeeded in all your machinery; and no less happy to hear that it is likely to prove very lucrative to the ingenious mechanic. We most sincerely hope that it will be as productive of advantage as of renown to the inventor, and that he and the public will be equally benefited by his  
various



various and ingenious contrivances. Mrs. Thurlow, who has been for some weeks confined, is at last come abroad, and has determined to put herself into a dress made out of the piece of muslinette you were so good as to present to her, and which for its novelty, and being the first fruits of your labour and art, she prizes beyond the richest productions of the East.

My family has lately been increased by the addition of a fine jolly boy, who, with his mother, is in perfect health. We hope to see you in Doncaster, as we pass through to London, and then and there will you receive my wife's thanks for your kind, and, in many respects, valuable present, and our united congratulations on your success. At present I conceive you are so much taken up with your machinations, (for they must not be denominated manufactures) that we must not entertain an hope of seeing you at Auckland before the Christmas holidays, soon after which we propose leaving this part of the world. If you can find leisure and inclination to take such a journey, no one can be more glad to see you (for as long a visit as you can make) than, my dear sir,

Your affectionate

humble servant,

THO. DURESME.

Auckland, Oct. 21.

D 3

This

This letter, it will be perceived, relates to an invention of Mr. Cartwright's for weaving by machinery, not mentioned in his memorial. The perfection to which it was brought is fully evinced by the product of that invention being thought sufficiently elegant to be worn on the public occasion alluded to.

*Letter from the late Lord Chancellor Batbursf,*  
*June 16, 1791.*

Sir,

I HAVE been informed that you have invented an excellent machine for combing Wool by a water-mill. The character given of it by Messrs. Gorton and Thomplon makes me very desirous of seeing it; and I would very readily take a journey from this place for that purpose, were I sure to find it at work, and you at home to explain it. If you will be so good as to inform me by letter, whether any, and what morning in next week, will be suitable to you, you may depend upon seeing me before two o'clock.

o'clock. Please to direct at Langwith Lodge,  
near Mansfield, for

Sir,

Your humble Servant,

BATHURST.

*Wednesday Night.*

Mr. Cartwright presumes there cannot be a stronger proof of the celebrity of his invention than that the venerable character, who honoured him with this letter, should, at a very advanced period of life, have taken a long journey, merely for the purpose of gratifying the curiosity the report of his invention had excited. As a proof that this curiosity was by no means limited, he begs leave to add, that his Mill was visited by many others of high rank and consequence, and, the Royal Family excepted, by men of the *first rank and consequence*; namely, our noble president, the archbishop of Canterbury, and the present Lord Chancellor.

*Letter from Sir J. Sinclair, Bart. late President of  
the Board of Agriculture.*

Sir,

I REGRETTED much, that I had not the good fortune of meeting with you at Doncaster, in my way to Scotland, but I hope to have that pleasure when I return to London, which will be about the beginning of February. In the meanwhile I should be glad to be favoured with your sentiments on the following subject. I left a paper for you at Doncaster, respecting a new Society that is formed in this country, for the purpose of improving British Wool, and you will receive, by this post, some other printed papers upon the subject, particularly regarding the wool of the Shetland Islands, a specimen of which I also left for you. By your very ingenious machines, you have brought the combing of wool to such perfection, that the following plan has occurred to me as worthy your attention.

The wool of the Shetland Islands, probably amounts to about 1000 packs, or 240,000 pounds weight. The people of that country have occasion for all that wool, not only for their own use,



use, but for a considerable manufacture of knit stockings which exists there, and of late years they have been under the necessity of importing wool from Scotland and England. But the misfortune is, that they know nothing, or next to nothing, about sorting their wool, that they cannot prepare it properly afterwards, and above all, that they make use of fine wool for purposes in which coarse wool might be employed. Though I have no property in, or connexion with, those Islands, yet I am extremely anxious, that so valuable a production of the British empire, should not be lost or thrown away.

The plan that has occurred to me is this. That your company should send 1000l. or 2000l. worth of combed wool, either to be sold there, or to be exchanged for the undressed wool of the country. That you should also send a combing machine, and some skilful hands, for sorting and dressing the Shetland wool properly. The coarse part of the wool, to be left in the islands to be manufactured there. The finer wool, to be brought to England and Scotland, in order to be employed in those fine manufactures, for which it is so peculiarly well calculated. Perhaps the Society for the improvement of British wool, might give some assistance for so desirable an object.

object. Their funds, however, would not admit a larger sum than perhaps a hundred guineas, and they would expect that one half of the fine wool, would be sold to the manufacturers of Scotland, at a fair price.

We propose trying different breeds from England, and among others, the small Nottinghamshire or forest breed hath been recommended to us, particularly from the flocks of the duke of Newcastle, and of Mr. Pierrepont. Perhaps it may be in your power to favour us with some information upon that subject.

I remain, with esteem,

Sir,

Your very obedient

humble Servant,

JOHN SINCLAIR.

Edinburgh, 16th January, 1791.

To

**To the Honourable the Commons of Great  
Britain, in Parliament assembled.**

**The Humble Petition of EDMUND CART-  
WRIGHT, of Doncaster, in the County of  
York, Clerk,**

**Sheweth,**

**THAT** your petitioner observes,  
by the votes of this Honourable House, that peti-  
tions have been presented by a large body of  
wool-combers of the manufacturing towns of this  
kingdom, praying the protection of this Honour-  
able House against the effects of certain machinery  
for combing wool;

That your petitioner is the inventor of the  
machinery alluded to by the said several petitions,  
and hath obtained his Majesty's Letters Patent,  
empowering your petitioner, his executors, admin-  
istrators, and assigns, to exercise and vend his  
said invention for his and their sole and separate  
use and benefit, for a term of fourteen years, a  
great part whereof is yet unexpired:

**That**

That your petitioner, at the same time that he humbly submits to this Honourable House, the machines, by which manufactures are carried on with a saving of manual labour, are beneficial to the interests of this kingdom, and therefore proper to be encouraged, instead of meeting with obstructions: yet, nevertheless, he is willing to concur in any plan for limiting him in the sale of his machinery to such number annually, as in the wisdom of this Honourable House shall appear expedient, without receiving any compensation by way of an equivalent, though he trusts that an extension of the term of his patent will not be considered as unreasonable, if the use of it is to be restrained.

Your petitioner therefore humbly prays, that this Honourable House will take his case into consideration, and permit him, if occasion shall require, to be heard by himself, his counsel, or his agent; and your petitioner shall ever pray, &c.

EDMUND CARTWRIGHT.

A STATEMENT,



## A STATEMENT,

*Shewing how many sets of combing machines (each set executing the work of twenty men\*) might be annually introduced without injury to hand labour.*

THE woolcombers are estimated, at an average, at 50,000.

It will require, therefore, according to the commonly received calculations on the probabilities of human life, an annual supply of 3125 to keep up the present number; consequently, were no more machinery annually to be brought into use than would do the work of 3125 men, there would still be employment for those who have been already bred to that occupation.

To do the work of 3125 men would require 156 sets of machinery; consequently, were no more than 156 sets to be annually introduced, the woolcombers who are now engaged in that occupation would find employment as usual.

Should parliament think proper to concur in

\* Each set now does the work of sixty.

the plan here suggested for removing all reasonable ground of apprehension from the minds of the woolcombers, and, in consideration of the restrictions the patentee submits to be laid under, give an extension to the term of his patent, he hopes it is not improper to add, as a still further argument in favour of such extension, that, in bringing this and other valuable inventions to their present state of maturity and perfection, he has expended nearly 30,000*l.* nor any part of which has he yet been reimbursed.

It is unnecessary to say, that the woolcombers' petition was thrown out. This happened in the year 1794.

*Letter from Davison and Hawksley, 20th January, 1800.*

*Mr. Edmund Cartwright,*

Sir, *Arnold Mill.*

In answer to your favour of the 18th instant, we estimate our savings, from the use of your patent combing machines, at full  
4500*l.*

4500l. per annum. This, if necessary, we would verify on oath. It is our opinion, that the saving to the trade in general by the use of your machines, and the piracies of yours, *now* amounts to from 25 to 30,000 l. annually; and that, when they are universally adopted, it will exceed 1,200,000 l. per annum. Any other information that you may wish to receive, we will give with pleasure.

We are, Sir,

Your obedient Servants,

DAVISON and HAWKSLEY.

*Letters from Dr. J. Crawford, an eminent Physician,  
now residing at Baltimore in America.*

Dear Sir,

I HAVE the pleasure to inform you that I arrived here safe, with my daughter, early in the last month, and have found every thing

thing exceed my expectations. I took an early opportunity to mention your very ingenious invention, and my brother-in-law, Col. O'Donnel, was so struck with the advantages of it, that he made an application to one of the secretaries of state to endeavour to obtain a sanction for my joining you in a patent for constructing bricks on your plan in this country; but, strange to say, no patent is allowed, except on the oath of a citizen that he is himself the inventor, and four years residence can alone secure that privilege. Hence we must profit by your ingenuity, without making any acknowledgment for the benefit; and no country ever required more such a resource against conflagration. Large portions of several cities have been destroyed since my arrival. Unless vessels should be met with requiring ballast, the freight would enhance their value beyond the possibility of making them generally useful. Depending then on your philanthropy, I shall entreat you will give the gentleman by whom this will be handed to you, the necessary instructions for enabling him to send out such samples of your bricks as will instruct us how to make and employ them to use here. I shall also flatter myself with a hope you will procure him the means of having proper models constructed, so as that we may be

fully



fully possessed of your ingenious ideas on this subject. I have already declared, since the discovery of the compass, yours is the most valuable invention the new world has experienced, and I have not a doubt of its handing down your name to the latest posterity, as one of the first of human benefactors. To enable families to repose in quiet, to obviate the apprehensions at present necessarily attached to the storing of valuable commodities, will certainly confer a benefit of the highest and most important nature. I shall hope to be honoured with a long particular letter from you, and shall, I trust, learn your scheme has been generally adopted, and proved as useful as it promised. I beg my best compliments to your lady, and the young ladies, and have the honour to be,

Dear sir, your most faithful,

and much obliged humble servant,

JOHN CRAWFORD.

*Baltimore, 12th January, 1797.*

E

Dear

## II.

Dear Sir!

I wrote you a few days ago, but as the conveyance of letters is at present so precarious, it is necessary I should trouble you again on the same subject. I have the pleasure to inform you that I arrived here with my daughter, both safe and well, early in the last month. An alarming fire had taken place a few days before, and several other towns on this continent have lately suffered greatly from the same calamity. I failed not to mention your ingenious invention. My account of it was received with avidity, and my brother-in-law, Col. O'Donnell, who has an extensive property in buildings, consulted the secretary of state, how far it was practicable for me to obtain a patent as your deputy, to introduce the practice of making bricks after your model, here. The laws grant this privilege alone to citizens, and you must be here four years before you could avail yourself of the discovery. Matters being thus circumstanced, I must value myself on your benevolence. I am convinced your philanthropy will lead you to extend the benefits of your invention as much as may be compatible with your more pressing avocations.

cations. I trust, therefore, you will assist Mr. Kirwan, or whoever may be appointed by him to wait upon you with this letter, in procuring such models of your bricks as will enable us to bring them into use here. If they have been found to answer in England, of which I can have no doubt, Mr. O'Donnell will immediately construct a building on your principles, after he is possessed of the means. If any one of the people who have been employed by you, and is a master of the business, should choose to come out here, a letter of recommendation from you, if he is sober, industrious, and skilful, would insure him a fortune. If, however, none such should offer, I am persuaded you will give Mr. Kirwan such information as will enable him to furnish us with every thing necessary for carrying your plan into effect in this country. This will be the greatest benefit the inhabitants of the new world have experienced since the discovery of the properties of the magnet; and the security which will be afforded to multitudes from the dangers of conflagration, will hand down your name to posterity as one of the most distinguished friends of mankind. Long may you live to enjoy the reward of so extensive a blessing.

This is a flourishing country. Order is making

rapid advances; and reason is assuming that dominion to which her high origin so eminently entitles her. The distractions of the old continent have reached us, but under so odious an appearance as to augment the principles of harmony, which are too deeply rooted to be liable to much injury.—May this be the lot of a country which must be ever dear to my remembrance; and may your family experience every advantage it is so capable of affording.—With best respects to your lady and family, I have the honour to remain,

Dear sir, your most obliged,

and most faithful humble servant,

JOHN CRAWFORD.

Baltimore, 23 Jan. 1797.

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*Certificate respecting Mr. Cartwright's Geometrical Principle for constructing Arches, and other Brick-work.*

THIS is to certify, that we have examined the addition to Mr. Cartwright's present dwelling house, built with his geometrical bricks. The walls are only fourteen inches thick, yet from their particular construction, are enabled to bear the weight of a brick arch five inches deep. The arch, from  
the



the form of the brick, can have no lateral pressure, and renders the building perfectly secure from fire.

JEFFRY WYATT, *Architect.*

GEO. MEREDITH, *Architect.*

RICH. MOTT, *Plasterer.*

ROB. TODD, *Builder.*

James Wyatt, Esq. royal academician, and surveyor general to the board of works, has given his most unequivocal testimony to the value of this invention by purchasing a moiety of the patent right\*.

*Certificate respecting Mr. Cartwright's Steam Engine.*

WE, the undersigned, do certify that we were present at the trial of a steam engine, invented by Mr. Cartwright, at Braithwaite's manufactory, in the New Road.

The engine worked with the greatest facility, and, as we were informed, with a pressure of thirteen pounds and a half upon a square inch.

\* Besides this, Mr. Cartwright has a patent for another invention, as a security against fire, equally as cheap, and, in some cases, more easy in its application than the geometrical arch.

Not conceiving we should be called upon to speak to this point, we did not count the weights, nor measure the length of the lever upon which they were suspended, nor the length of the crank, which we might have done if we pleased. But we took for granted the facts as they were stated to us, and which we believe to be accurate.

*John Walker.*

*William Moorcroft.*

*Geo. Saunders.*

*Arthur Young.*

*John Cochrane.*——In addition to the above, I have further to observe, that the engine being made by my order, I was particularly attentive to the power of the engine, which exceeded any idea I had previously formed.

J. C.

*Extract*

*Extract from the Philosophy of Medicine,*

Vol. V. p. 116.

A remedy which contains much fixed air has been lately started by the Rev. Mr. Cartwright, which merits the highest attention. Seventeen years ago, says this gentleman, I went to reside at Brampton, a very populous village near Chesterfield; I had not been there many months before a putrid fever broke out among us: finding by far the greater number of my new parishioners much too poor to afford themselves medical assistance, I undertook, by the help of such books on the subject of medicine as were in my possession, to prescribe for them. I early attended a boy about fourteen years of age, who was attacked by this fever; he had not been ill many days before the symptoms were unequivocally putrid. I then administered bark, wine, and such other remedies as my book directed. My exertions, however, were of no avail; his disorder grew every day more untractable and malignant, so that I was in hourly expectation of his dissolution. Being under the absolute necessity of taking a journey, before I set off I went to see him, as I thought for the last time, and I prepared his parents for the event of

his death, which I considered as inevitable, and reconciled them, in the best manner I was able to a loss which I knew they would feel severely. While I was in conversation on this distressing subject with his mother, I observed in a corner of the room a small tub of wort working; the sight brought to my recollection an experiment I had somewhere met with, of a piece of putrid meat being made sweet by being suspended over a tub of wort in the act of fermentation. The idea instantly flashed into my mind, that the yeast might correct the putrid nature of this disease, and I instantly gave him two large spoonfuls. I then told the mother, if she found her son better, to repeat this dose every three hours. I then set out on my journey; upon my return, after a few days, I anxiously inquired about the boy, and was informed he was recovered. I could not repress my curiosity, though I was greatly fatigued with my journey, and night was come on; I went directly to where he lived, which was three miles off, in a wild part of the moors; the boy himself opened the door, looked surprisingly well, and told me he felt better from the instant he took the yeast.

After I left Brampton, I lived in Leicestershire: my parishioners being then few and opulent, I dropped my medical character entirely, and would  
not



not even prescribe for any of my own family. One of my domestics falling ill, accordingly the apothecary was sent for ; his complaint was a violent fever, which in its progress became putrid: having great reliance, and deservedly, on the apothecary's penetration and judgment, the man was left solely to his management. His disorder, however, kept daily gaining ground, till at length the apothecary considered him in very great danger; at last, finding every effort to be of service to him baffled, he told me he considered it as a lost case, and that, in his opinion, the man could not survive four and twenty hours. On the apothecary thus giving him up, I determined to try the effects of yeast. I gave him two large table spoonfuls; in fifteen minutes from taking the yeast his pulse, though still feeble, began to get composed and full. He in thirty-two minutes from his taking the yeast was able to get up from his bed and walk in his room. At the expiration of the second hour I gave him a basin of sago, with a good deal of lemon, wine, and ginger in it; he eat it with an appetite: in another hour I repeated the yeast; an hour afterwards I gave the bark as before; at the next hour he had food; next he had another dose of yeast, and then went to bed; it was nine o'clock. I went to see him the next morning

ing at six o'clock ; he told me he had had a good night, and was recovered. I, however, repeated the medicine, and he was able to go about his business as usual.

About a year after this, as I was riding past a detached farm-house at the outskirts of the village, I observed a farmer's daughter standing at the door, apparently in great affliction ; on inquiring into the cause of her distress, she told me her father was dying. I dismounted and went into the house to see him. I found him in the last stage of a putrid fever ; his tongue was black ; his pulse was scarcely perceptible ; and he lay stretched out, like a corpse, in a state of drowsy insensibility. I immediately procured some yeast which I diluted with water, and poured it down his throat. I then left him with little hopes of recovery. I returned to him in about two hours, and found him sensible and able to converse. I then gave him a dose of bark ; he afterwards took at a proper interval some refreshment ; I staid with him till he repeated the yeast, and then left him with directions how to proceed. I called upon him the next morning at nine o'clock ; I found him apparently well walking in his garden : he was an old man upwards of seventy.

I have since administered the yeast to above  
fifty

fifty persons labouring under putrid fevers, and, what is singular, continues this benevolent clergyman, "I have lost not one patient."

Dr. Thornton, whose opportunities have been great in putrid fevers, having the superintendence of a dispensary \* which includes the poor of nine parishes, and is situated in the vicinity of St. Giles's, has made frequent trials of yest, and speaks highly in its praise.

One day, says the Rev. Mr. Townsend, by accident, as Dr. Thornton went past a shop † in Tottenham-Court Road, he heard the screams of a mother who was agonized on seeing her child, as she thought, expire. These screams renewed the struggles of the child, and the nurse who attended threatened to take away at this moment the child, that it might die in quiet. Dr. Thornton got down immediately some tartar emetic, which quickly acted as a vomit; and after the operation was over, he gave rhubarb which cleared the intestines; he then ordered the child every two hours yest and water, with wine and bark, and in three days the dying child was up and well.

The infection had spread to two others in the

\* The General Dispensary.

† Mr. Burford's.

same house; in this child and in another the putrid fever was attended with swelled glands, which suppurated and threatened gangrene: in a robust servant girl, it took the form of a dreadful putrid sore throat; she had an emetic, and afterwards some rhubarb, then yeast and water every two hours. The first effects of this newly discovered remedy was that of rendering the pulse fuller and fifteen beats less in a minute, and her black tongue soon assumed a clean and red appearance; without bark or wine she was speedily recovered.

In Dr. Beddoes' Considerations there are the following cures: Mr. Caldwell, engraver (as Dr. Thornton reports), requested him to go into Green Street, Leicester Fields, to attend Mr. Hadril, who, he said, it was supposed would not outlive the day. I found him labouring under a dreadful putrid sore throat, the tongue was black and thick coated, and the pulse quick and fluttering; evacuations being first premised, yeast and bark in porter were exhibited every two hours: his sister, who nursed him, was soon after attacked by the same fever, but the throat was not affected. She was not like her brother confined to her bed, but her weakness was so great that she could not walk across the room, nor even stand up half a minute without support. In both these cases the relief



relief from the yeast was very striking, and they were soon cured: the wife was also infected, who received a similar benefit from the yeast.

The most extraordinary cases, however, are the following: In Husband Street, a small confined situation near Berwick Street, a fever broke out, which in the short space of a fortnight, in three houses only, swept away six persons. Dr. Thornton's assistance was at this time called in to Mrs. Wollot, No. 1, in that street, who lay delirious and comatose, with her two children, all in the same bed. She refused medicine and food, and was obliged to be drenched in order to get either down; an emetic and cathartic being premised, they were all put upon the same plan; that is, were to take every three hours two thirds of a glass of fresh porter, with two table spoonfuls of yeast, and the juice of half a lemon, and the food at intervals was the white of eggs, which Dr. Thornton judged of all things were least subject to putrify\*, beat up with some sugar and water, and as it was the commencement of summer, strawberries were also ordered; and without any

\* We know that eggs are kept for a great length of time, and the whites, even under the heat of the hen's body, does not putrify, and it serves as milk to the embryo in the egg.

farther

farther medicine from the apothecary than the emetic and purge, although the woman was at first obliged to be drenched, yet she and her whole family recovered, and this very rapidly.

Among the poor in St. Giles's nothing is administered by Dr. Thornton, after cleansing the primæ viæ, then two table spoonfuls of yeast in some porter, every two hours; and out of above forty cases not one has died under this treatment.

THE END.



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A LEGENDARY TALE



O THE O F M S

R. EDMUND CARRINGTON, M.A.

AND FELLOW OF LINCOLN